24. A modified M2 polypeptide with reduced hydrophobicity and enhanced recombinant expression relative to a native M2, the modified M2 polypeptide comprising a sequence of amino acids identical to a native M2 protein in which the transmembrane region and from 0 to 12 amino acid residues adjacent to the transmembrane region on the C-terminal side have been deleted.

25. The modified M2 polypeptide of claim 24, wherein the transmembrane region and none of the adjacent residues on the C-terminus side of the transmembrane region have been deleted.

26. The modified M2 polypeptide of claim 24, wherein the transmembrane region and the adjacent 12 amino acids on the C-terminal side of the transmembrane region have been deleted.

27. The modified M2 polypeptide of claim 24, wherein the native M2 protein is from the A/Aichi/2/68 (H3N2) virus.

28. The modified M2 polypeptide of claim 27, wherein amino acids 26-43 have been deleted.

29. The modified M2 polypeptide of claim 27, wherein amino acids 26-55 have been deleted.

30. The modified M2 polypeptide of claim 24, wherein the deleted amino acid residues are replaced one or more neutral or hydrophilic amino acid residues, provided that the total number of amino acid residues in the modified M2 polypeptide is less than or equal to the number in the native M2 polypeptide.

31. The modified M2 polypeptide of claim 30, wherein all of the deleted amino acids are replaced with from one to six glycine residues.

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32. A modified M2 polypeptide with reduced hydrophobicity and enhanced recombinant expression relative to a native M2, the modified M2 polypeptide comprising a sequence of amino acids identical to a native M2 protein in which from one to all of the amino acid residues of the transmembrane region and from 0 to 12 amino acid residues adjacent to the transmembrane region on the C-terminal side are replaced with neutral or hydrophilic amino acid residues.

33. The modified M2 polypeptide of claim 32, wherein all of the amino acid residues of the transmembrane region have been substituted with neutral or hydrophilic residues.

34. The modified M2 polypeptide of claim 32, wherein all of the amino acid residues of the transmembrane region and from one to twelve amino acids adjacent to the transmembrane region on the C-terminal side have been substituted with neutral or hydrophilic residues.

35. The modified M2 polypeptide of claim 32, wherein the native M2 protein is from the A/Aichi/2/68 (H3N2) virus.

36. A modified M2 polypeptide fusion protein comprising a modified M2 polypeptide according to claim 24.

37. A modified M2 polypeptide fusion protein comprising a modified M2 polypeptide according to claim 30.

38. A modified M2 polypeptide fusion protein comprising a modified M2 polypeptide according to claim 31.

39. A modified M2 polypeptide fusion protein comprising a modified M2 polypeptide according to claim 32.

40. A modified M2 polypeptide fusion protein comprising a modified M2 polypeptide according to claim 35.

41. A DNA molecule comprising a sequence of nucleotides encoding a modified M2 polypeptide according to claim 24.

42. A DNA molecule comprising a sequence of nucleotides encoding a modified M2 polypeptide according to claim 30.

43. A DNA molecule comprising a sequence of nucleotides encoding a modified M2 polypeptide according to claim 31.

44. A DNA molecule comprising a sequence of nucleotides encoding a modified M2 polypeptide according to claim 32.

45. A DNA molecule comprising a sequence of nucleotides encoding a modified M2 polypeptide according to claim 35.

46. A vector capable of expressing a modified M2 polypeptide, the vector comprising the DNA molecule of claim 41.

47. A vector capable of expressing a modified M2 polypeptide, the vector comprising the DNA molecule of claim 42.

48. A vector capable of expressing a modified M2 polypeptide, the vector comprising the DNA molecule of claim 44.

49. A vector capable of expressing a modified M2 polypeptide, the vector comprising the DNA molecule of claim 45.

50. A vector capable of expressing a modified M2 polypeptide, the vector comprising the DNA molecule of claim 45.

51. A host cell capable of expressing a modified M2 polypeptide, the host cell comprising a vector according to claim 46.

52. A host cell capable of expressing a modified M2 polypeptide, the host cell comprising a vector according to claim 47.

53. A host cell capable of expressing a modified M2 polypeptide, the host cell comprising a vector according to claim 48.

54. A host cell capable of expressing a modified M2 polypeptide, the host cell comprising a vector according to claim 49.

55. A host cell capable of expressing a modified M2 polypeptide, the host cell comprising a vector according to claim 50.

56. The host cell according to claim 51, wherein the host is a prokaryote.

57. The host cell according to claim 52, wherein the host is a prokaryote.

58. The host cell according to claim 53, wherein the host is a prokaryote.

59. The host cell according to claim 54, wherein the host is a prokaryote.

60. The host cell according to claim 51, wherein the prokaryote is *E. coli.*

61. The host cell according to claim 52, wherein the prokaryote is *E. coli.*

62. The host cell according to claim 53, wherein the prokaryote is E. *coli.*

63. The host cell according to claim 54, wherein the prokaryote is E. *coli.*

64. The host cell according to claim 55, wherein the prokaryote is *E. coli.*.

65. A composition comprising a modified M2 polypeptide of claim 24 and a pharmaceutically acceptable carrier.

66. A composition comprising a modified M2 polypeptide of claim 30 and a pharmaceutically acceptable carrier.

67. A composition comprising a modified M2 polypeptide of claim 31 and a pharmaceutically acceptable carrier.

68. A composition comprising a modified M2 polypeptide of claim 32 and a pharmaceutically acceptable carrier.

69. A composition comprising a modified M2 polypeptide of claim 35 and a pharmaceutically acceptable carrier.

70. An antibody to a modified M2 polypeptide of claim 24.

71. An antibody to a modified M2 polypeptide of claim 30.

72. An antibody to a modified M2 polypeptide of claim 31.

73. An antibody to a modified M2 polypeptide of claim 32.

74. An antibody to a modified M2 polypeptide of claim 35.

75. A method of preventing or treating a subject suffering from viral influenza A infection, the method comprising administering a prophylactic or viral load-reducing amount of an antibody according to claim 70.

76. A method of preventing or treating a subject suffering from viral influenza A infection, the method comprising administering a prophylactic or viral load-reducing amount of an antibody according to claim 71.

77. A method of preventing or treating a subject suffering from viral influenza A infection, the method comprising administering a prophylactic or viral load-reducing amount of an antibody according to claim 72.

78. A method of preventing or treating a subject suffering from viral influenza A infection, the method comprising administering a prophylactic or viral load-reducing amount of an antibody according to claim 73.

79. A method of preventing or treating a subject suffering from viral influenza A infection, the method comprising administering a prophylactic or viral load-reducing amount of an antibody according to claim 74.

80. A method for determining current or previous exposure of a subject to influenza virus, the method comprising contacting a sample from the subject with a modified M2 protein according to claim 24 and detecting the binding of antibodies to the modified M2 protein.

81. A method for determining current or previous exposure of a subject to influenza virus, the method comprising contacting a sample from the subject with a modified M2 protein according to claim 30 and detecting the binding of antibodies to the modified M2 protein.

82. A method for determining current or previous exposure of a subject to influenza virus, the method comprising contacting a sample from the subject with a modified M2 protein according to claim 31 and detecting the binding of antibodies to the modified M2 protein.

83. A method for determining current or previous exposure of a subject to influenza virus, the method comprising contacting a sample from the subject with a modified M2 protein according to claim 32 and detecting the binding of antibodies to the modified M2 protein.

84. A method for determining current or previous exposure of a subject to influenza virus, the method comprising contacting a sample from the subject with a modified M2 protein according to claim 35 and detecting the binding of antibodies to the modified M2 protein.

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85. A method of preparing an M2 antibody, the method comprising immunization of a subject with a composition according to claim 65.

86. A method of preparing an M2 antibody, the method comprising immunization of a subject with a composition according to claim 66.

87. A method of preparing an M2 antibody, the method comprising immunization of a subject with a composition according to claim 67.

88. A method of preparing an M2 antibody, the method comprising immunization of a subject with a composition according to claim 68.

89. A method of preparing an M2 antibody, the method comprising immunization of a subject with a composition according to claim 69.

Please cancel claims 1-23 without prejudice.

REMARKS

Claims 1-23 are pending in the present application. Claims 1-23 are the claims presented in response to the Written Opinion for International Application No. PCT/US98/16379 from which the present application claims priority. Claims 1-23 are canceled herein without prejudice. Claims 24-89 are added herein for clarity and to more particularly define the invention. Support for new claims 24-89 can be found in claims 1-66 as originally filed in International Application No. PCT/US98/16379 and throughout the specification as filed. It is believed that no new matter has been added by these new claims. No additional claims fees are believed due because, as indicated